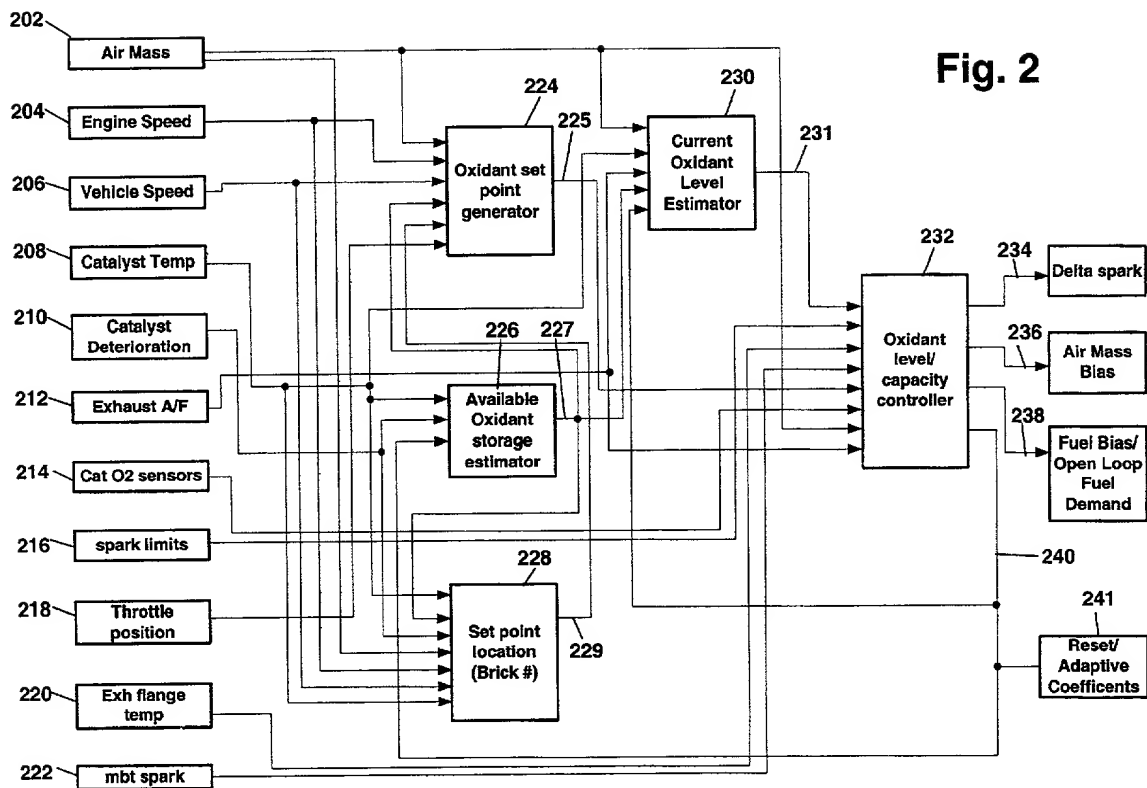


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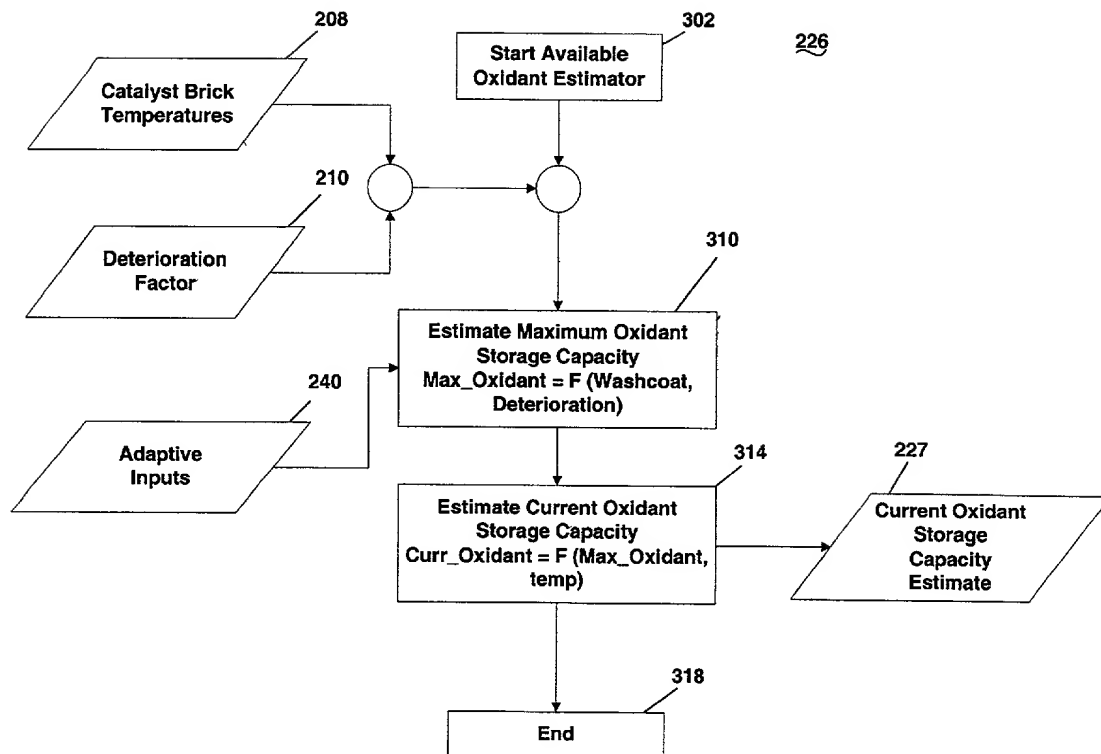


Fig. 3

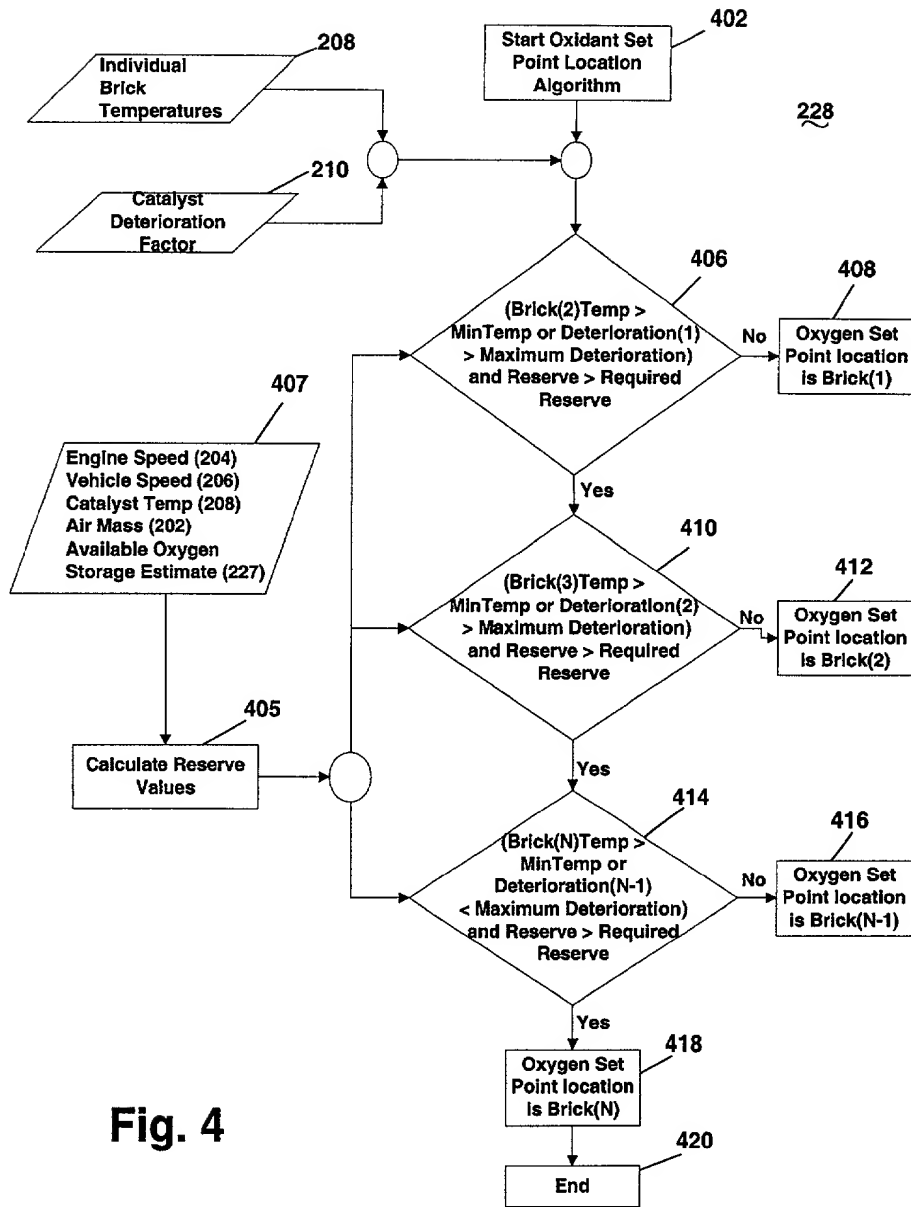
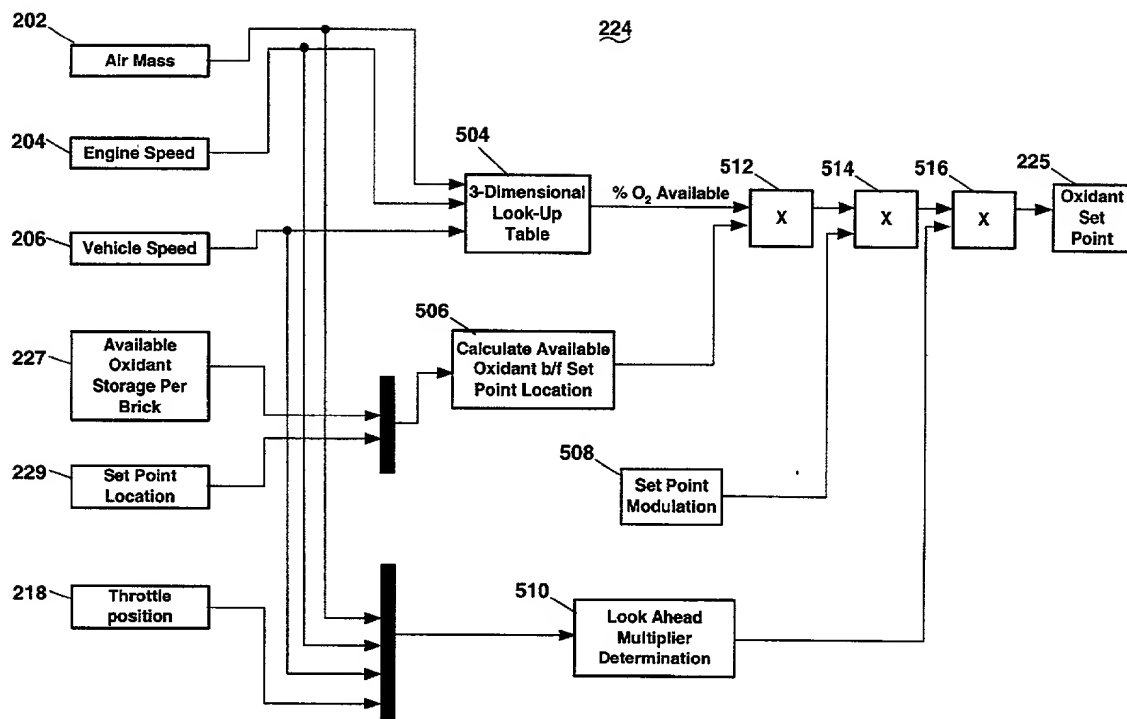
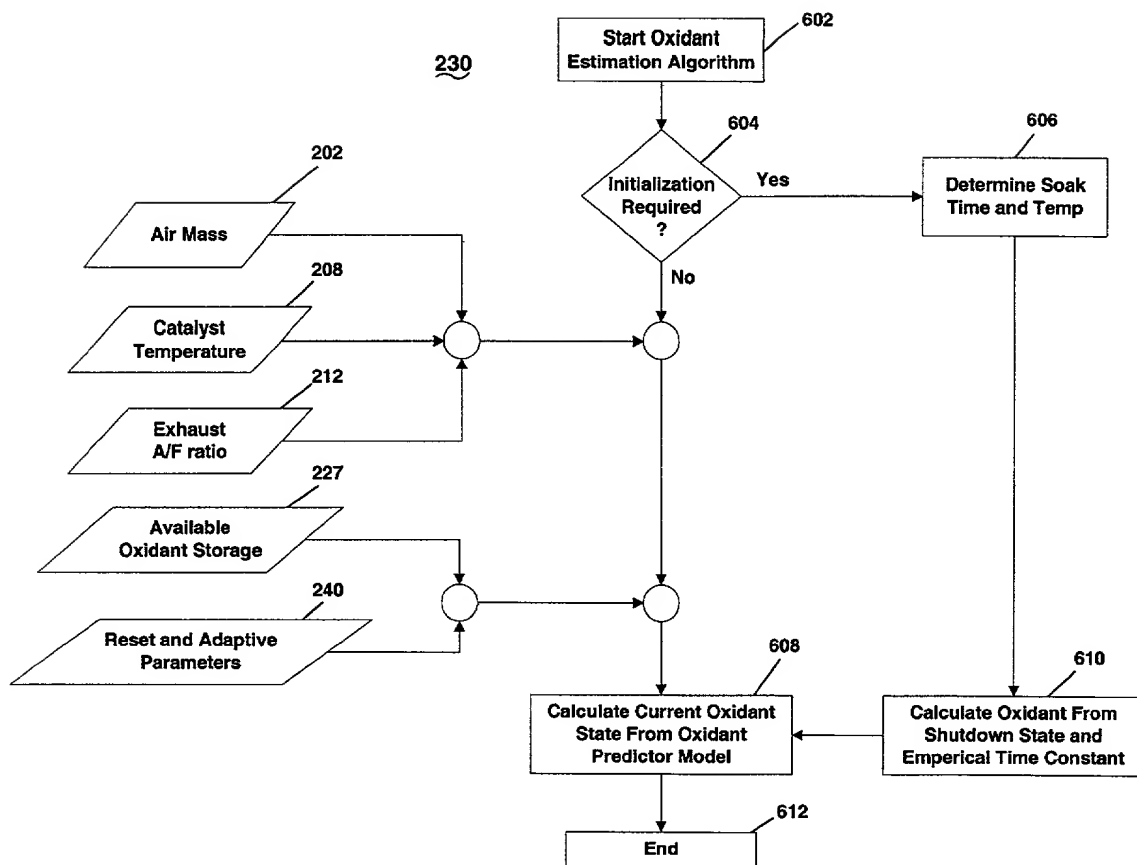


Fig. 4



**Fig. 5**



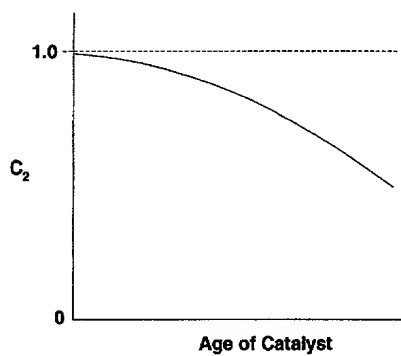
**Fig. 6**

The diagram illustrates an engine control system with the following components and signal flow:

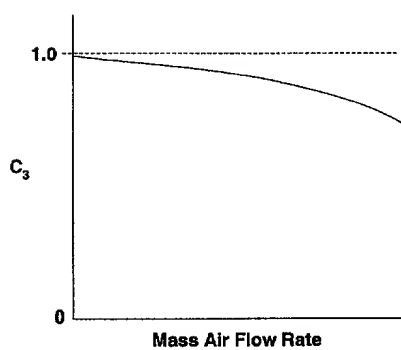
- Inputs:**
  - 227: Available O<sub>2</sub> Storage / brick
  - 231: Current O<sub>2</sub> Storage/brick
  - 216: Spark Drivability Limits
  - 220: Exhaust Flange Temperature
  - 222: Mbt Spark
  - 225: Oxygen Set Point
  - 214: Oxygen Sensor Feedback/brick
  - 202: Air Mass
  - 212: Exhaust Air/Fuel Ratio
- Processing Blocks:**
  - 710: Sum Available O<sub>2</sub> Estimates of all bricks
  - 711: Sum Current O<sub>2</sub> Estimates of all bricks
  - 703: Calculate Spark Retard Gain based on Exhaust Flange Temp
  - 704: Calculate Spark Retard with drivability Limits
  - 706: Calculate Torque from Mbt
  - 708: Calculate Air Mass to Maintain Torque
  - 736: Proportional Gain
  - 738: Integral Gain
  - 744: Select Bias or Open Loop Fuel
  - 740: Schedule Open Loop Fuel based on O<sub>2</sub> Level
  - 712: Convert EGO Sensor Voltage to Oxygen Concentration
  - 714: Integrate Air Mass Flow over Sample Interval
  - 716: Convert EGO Sensor Voltage to Oxygen Concentration
  - 718: Determine Time Constant from Look-up Table
  - 720: X (Multiplier)
  - 722: X (Multiplier)
  - 724: Integrate total stored oxygen over time
  - 725: Observer Gain
  - 732: Reset/ Adaptive mode to Release/ Absorb Coefficients
- Outputs and Intermediate Signals:**
  - 701: Sum of 710 and 711
  - 702: Output of 704
  - 703: Output of 703
  - 704: Output of 704
  - 706: Output of 706
  - 708: Output of 708
  - 730: Air Mass Bias
  - 742: Sum of 736 and 738
  - 744: Output of 744
  - 746: Fuel Bias/ Open Loop Demand to Controller
  - 726: Sum of 724 and 725
  - 728: Output of 725
  - 730: Calculate Reset/ Adaptive Coefficients
  - 732: Output of 732

**Fig. 7**

**Fig. 8A**

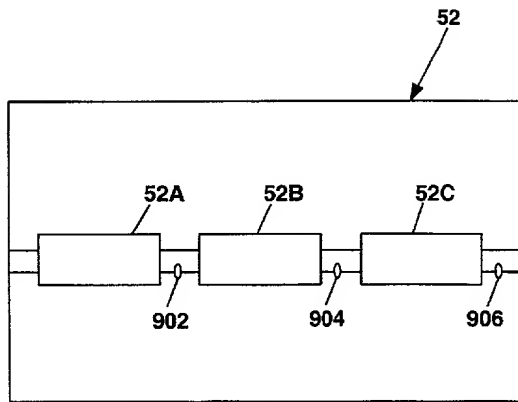


**Fig. 8B**

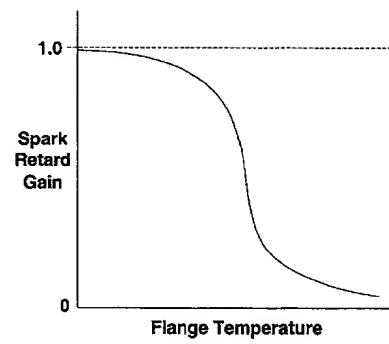


**Fig. 8C**





**Fig. 9**



**Fig. 10**